

EM PROGRESS

RECLAIMING THE PAST TO SECURE THE FUTURE

A REPORT FROM THE U.S. DEPARTMENT OF ENERGY'S OFFICE OF ENVIRONMENTAL MANAGEMENT

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DOE, States and Regulators Agree to Accelerate Cleanup

After meetings with the Environmental Protection Agency (EPA) and state officials, Secretary of Energy Spencer Abraham recently announced that the Department of Energy has signed Letters of Intent to enter into accelerated cleanup agreements with six DOE cleanup sites. The sites are the Idaho National Engineering and Environmental Laboratory in Idaho, the Sandia National Laboratories and Los Alamos National Laboratory in New Mexico, the Nevada Test Site in Nevada, the Oak Ridge Site in Tennessee, the Hanford Site in Washington, and the Savannah River Site in South Carolina.

These agreements resulted from DOE's Environmental Management Accelerated Cleanup Program, which provides additional funding to sites that agree to streamline cleanup operations by working with states and regulators to target and reduce the greatest health and environmental risks. The additional funds and commitment by all parties to complete the cleanup as efficiently as possible will cut years and millions of dollars off the total cost of the nuclear cleanup.

Each site has developed a draft Performance Management Plan (PMP) of its initiatives with input from the EPA, state officials, regulators and local stakeholders. Whereas the Letters of Intent outline broad goals and objectives for accelerated cleanup work at each site, the draft PMPs provide strategies for how each site will accelerate risk reduction and cleanup.

In addition to the sites that have already signed Letters of Intent, many other sites have made draft PMPs available for public comment to allow stakeholders to make suggestions for improvement, and are working with regulators to develop Letters of Intent. The Department's goal is to have Letters of Intent and Performance Management Plans completed at most sites by the end of the summer.

The EM program is determined to ensure that cleanup efforts are directed toward reducing risk as quickly and efficiently as possible.

For more information, visit www.em.doe.gov/cr.html.

Weldon Spring Prepares for Closure, Encourages Visitors

The past year has been a busy one at the Weldon Spring site in Missouri, as the site rapidly approaches closure in September. A trail is being built to connect the site to a statewide bicycle and pedestrian walking trail, construction on the Weldon Spring Interpretive Center is wrapping up, and final details of site restoration have been completed.

DOE and the State of Missouri are building the Hamburg Trail to connect the Weldon Spring site with the historic Katy Trail, a bicycle and pedestrian walking trail that cuts across the state

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EM SSAB Charter Renewed

The Secretary of Energy recently renewed the charter for the Environmental Management Site-Specific Advisory Board for a two-year period ending May 15, 2004. The continuation of the EM SSAB is consistent with Assistant Secretary for Environmental Management Jessie Roberson's commitment to meaningful public involvement in the EM program.

Nine local citizen advisory boards are organized and operated under the EM SSAB Charter. The boards provide advice and

recommendations to local Site Managers and to the Assistant Secretary regarding cleanup standards and environmental restoration; waste management and disposition; stabilization and disposition of non-stockpile nuclear materials; excess facilities; future land use; long-term stewardship; risk assessment and management; and science and technology activities, among other issues.

To view the Charter, or learn more about the EM SSAB or local boards, visit www.em.doe.gov/public/ssab/.

Stakeholders Meet, Discuss Alternative Technologies

In early June, more than 50 representatives from a wide range of non-government organizations, state environmental departments, citizen advisory boards, the U.S. Department of Energy (DOE) and other stakeholders met to discuss alternative technologies to incineration for mixed transuranic and mixed low-level waste. The objectives of this stakeholder forum on Alternative Technologies to Incineration included facilitating an exchange of information among technical experts, regulators, and concerned stakeholders and identifying stakeholder values and concerns that DOE should consider in its technology development and evaluation process.

Issues discussed at the forum included DOE's plans for developing alternative technologies to incineration, the current state of alternative technology development, factors to be considered in determining the acceptability of new technologies, stakeholder views and opportunities for stakeholder involvement in new technology development and evaluation.

An all-day working session was held to give stakeholders an opportunity to partake in facilitated discussion regarding alternative technologies to incineration. A list of values and concerns was developed and edited for presentation to DOE for consideration in evaluating and selecting technologies at the local levels.

For more information, visit the ATI Forum Web site at <http://tmfa.inel.gov/ati/>.

Weldon Spring, *continued from page 1*

paralleling the Missouri River. To further enhance the site for visitors and family-oriented recreation, DOE also is connecting the Hamburg Trail to the new wildlife center at August Busch Memorial Wildlife Area at Weldon Spring.

Once finished, the 9,375 square-foot Interpretative Center will depict the history of the Weldon Spring site and of the towns that once occupied the area, and detail the progression of the cleanup process that resulted in construction of the Disposal Cell.

Final restoration of the site includes a viewing platform on the Waste Disposal Cell. This platform is being completed on the peak to provide the public with a panoramic view of St. Charles County, adding a guard rail to prevent access to all-terrain vehicles, and final grading and seeding with indigenous prairie grasses on the 153 acres surrounding the cell. The 45-acre disposal cell is a geometrically optimized and domed five-sided structure designed to stably house radioactively and chemically contaminated material for 1,000 years.

For more information, contact Wendy Drnec on (636) 441-8086, ext. 7079 or at wdrnec@wssrap.com.



Weldon Spring Disposal Facility, Interpretative Center and the Hamburg Trail.

Oak Ridge Opens New Information Center

Now that its Information Center is open, Oak Ridge has a one-stop shop for public information access and stakeholder involvement activities.

The 6,800 square-foot Information Center opened in June with a repository for DOE documents, computer workstations for access to DOE-related Web sites, space for public meetings, and an office for the Environmental Management Site-Specific Advisory Board (EM SSAB) at Oak Ridge.

"We're very pleased to be able to offer the community a facility of this quality," said Michael Holland, Acting Manager of DOE Oak Ridge Operations. "We believe our stakeholders will find it a great convenience to have just one place to go for public meetings and information on all DOE programs in Oak Ridge."

Previously, stakeholders had to go to one facility for Freedom of Information Act and National Environmental Policy Act

documents and to another facility several miles away for information about the Environmental Management Program. Public meetings were scheduled at a variety of locations.

Pat Halsey, Coordinator for the EM SSAB, Oak Ridge, said that the consoli-

dation will save DOE a considerable amount of time and money. "It makes great sense from a logistical standpoint," she said, "because it allows us to concentrate our resources. But the real focus is on serving the stakeholders and providing them with a place where they can get the information they need, both through documentation and through public meetings with DOE."

For more information, contact Walter Perry on (865) 576-0885 or perrywn@oro.doe.gov.



The new DOE Information Center in Oak Ridge, Tennessee, offers stakeholders "one-stop shopping" for public involvement activities.

DOE Cleans Up Old Oak Ridge Landfill

Excavation of the K-1070A burial grounds, a series of pits and trenches where hazardous wastes were buried until the mid-1970's, is a significant step in the cleanup process at Oak Ridge. The removed waste material will be reburied in a new state-of-the-art disposal facility on the Oak Ridge Reservation.

The intent of excavating the burial grounds is to remove a source of pollution that threatens the ground water west

of the East Tennessee Technology Park. Although there is no immediate health threat, officials are concerned that migrating pollutants could eventually enter local creeks and reach downstream intakes for drinking water supplies.

"The potential is there. If this source of contamination is left in the unlined burial ground, it could eventually have offsite impacts," said DOE Project Manager Wendy Cain.

The biggest concern is trichloroethylene, or TCE, a widely used industrial solvent that is toxic and possibly carcinogenic. Radioactive materials such as uranium, beryllium and technetium are also present.

DOE plans to spend about \$14.5 million over the next nine months to dig up the one-acre landfill and transport 20,000 cubic yards of waste to the new disposal facility.

For more information, contact Donna Perez on (865) 576-8625.

New Disposal Facility Opens In Oak Ridge

The initial segment of a new disposal facility for low-level nuclear, mixed, and hazardous waste from the Oak Ridge Reservation is open for business.

The facility will receive waste generated by environmental remediation activities at each of DOE's Oak Ridge facilities—the Y-12 National Security Complex, Oak Ridge National Laboratory and the East Tennessee Technology Park (formerly called the K-25 site).

The first segment of the Environmental Management Waste Management Facility is capable of handling about 400,000 cubic yards of waste. The state-of-the-art design includes several layers of clay, rock and various synthetic liners to prevent waste from contaminating the area's ground water. It also has a system to collect and treat liquids that leach from the waste operations.

"Waste volumes will be high, but the levels of radioactivity and chemical contamination will be low," DOE Project Manager Bill Cahill says. "The wastes will

include construction rubble, concrete, soils and general debris."

DOE will save millions of dollars by disposing of waste locally rather than shipping it to commercial landfills or other Federal sites. Based on the total cost of building and operating the facility, DOE estimates the cost of disposal will be about \$165 per cubic yard of waste. The cost to send the waste offsite was projected to be as much as \$800 per cubic yard.

Under an agreement negotiated with the state of Tennessee, DOE will make annual payments to a special fund set up for long-term surveillance of the facility after it is closed. The interest from the fund is expected to pay for long-term monitoring costs. Three or four additional disposal cells of varying sizes may be constructed at the 65-acre site, and the entire facility is expected to be closed in about 10 years.

For more information, contact William Cahill on (865) 241-4830.

Vacuuming Vapors from the Vadose Zone

Three extraction units, similar to industrial-sized vacuums, are pulling harmful vapors from the vadose zone—the unsaturated layers of rock and soil between the ground surface and the water table—at the U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory. The vapor vacuum extraction units have successfully removed and treated approximately 110,000 pounds of volatile organic compounds since January 1996, including more than 70,000 pounds of carbon tetrachloride.

The project is one of INEEL's ongoing environmental cleanup efforts to limit contaminants reaching the Snake River Plain aquifer. Volatile organic compounds have been detected at levels slightly above safe drinking water standards in the aquifer near the Radioactive Waste Management Complex. While the levels present do not pose an immediate risk, this remedial action was undertaken to restrict migration of contaminants to the ground water.

The extraction units pull hazardous vapors from soil and the basalt rock above the 110-foot level in the subsurface. Two thermal units use elevated temperatures to destroy the organic compounds and one unit uses a catalyst to destroy them—a process similar to the catalytic converter in automobiles.

The extraction units, which were put into operation in 1996, could be used for 20-30 more years to treat the vapors in the vadose zone to prevent contaminant migration to the aquifer. The older thermal treatment units will be replaced with newer, more efficient and cost-effective models over the next several years.

For more information, contact Kevin O'Neill on (208) 526-5455.



Graders cover waste material placed in the Environmental Management Waste Management Facility (EMWMF) on the Oak Ridge Reservation. The facility was recently opened and will handle much of the waste generated by CERCLA activities at the site.

INEEL Reduces Lead Inventories

The U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory (INEEL) is recycling lead to reduce its inventories of the very common hazardous substance.

The lead, used for radiation shielding in reactors, fuel casks, and special rooms where radioactive materials are fabricated or handled, comes in a variety of forms—

bricks, pellets, casks, lead shot and even wool.

Approximately 625,000 pounds of lead have been shipped offsite in recent years, with only about 17,000 pounds (2.7 percent) becoming waste. The rest was used in a variety of ways, including lead shielding at other DOE sites, and most recently, shielding for research facilities at

Idaho State University. This fiscal year, INEEL has shipped approximately 160,000 pounds of lead bricks to that university alone.

"In a situation where you have limited options, INEEL is truly doing a good job," said Jeff Mousseau, manager of INEEL's Waste Generator Service group. "We're proud of our record of reuse and recycling of this important but hazardous material."

For more information, contact Jeff Shadley on (303) 526-5005.

Faster Glass

PNNL, SRTC Team Up for More Vitrification Efficiency

A more efficient formula for vitrifying (turning into glass) radioactive waste was developed by a team of researchers at Pacific Northwest National Laboratory (PNNL) and the Savannah River Technology Center (SRTC). By allowing more waste to be incorporated into each batch of glass and producing it faster, this new glass formula may significantly reduce the price tag attached to vitrifying waste, an integral part of cleaning up the nation's nuclear waste.

Scientists at PNNL and SRTC studied the details of the glass-melting process and applied glass property models to develop a new frit (the glass-forming material used in vitrification). The new frit showed a melt rate 20 percent faster than the previous frit, and the sludge waste loading looks to be significantly higher than in the old frit.

The life cycle cost savings should be significant. Each 10 percent improvement in the melt rate will save about \$800 mil-

lion. Each percent waste loading improvement will save about \$300 million over the current baseline.

According to PNNL task lead John Vienna, "This work is an excellent example of the benefits of working together in teams across laboratory boundaries. The

impact of this change to the Defense Waste Processing Facility operation at Savannah River will be a marked improvement in operating efficiency and waste loading—saving taxpayers money with low operational risk."

For more information, contact Kathryn Lang on (509) 375-3837 or at kathryn.lang@pnl.gov



Pacific Northwest National Laboratory and the Savannah River Technology Center researchers studied the glass-melting process to develop a new, faster glass-forming material to use in vitrifying radioactive waste.

SPOTLIGHT ON HANFORD SITE

Office of River Protection is Solving Hanford's Tank Waste Cleanup Challenge

The Office of River Protection (ORP), one of the Department of Energy's newest offices, is working to solve cleanup challenges at Hanford. The challenges include removing 53 million gallons of highly radioactive, highly hazardous waste currently stored in 177 aging underground storage tanks at Hanford, seven miles from the Columbia River.

Sixty-seven of the tanks have leaked or are suspected of having leaked approximately one million gallons of waste in the past, including an estimated one million curies of radioactivity. The Office of River Protection plans to vitrify the tank waste by building the world's largest radiochemical processing facility.

In the meantime, ORP has been busy solving critical safety issues, maintaining the tanks in a safe and stable manner, preparing to construct the waste vitrification plant, working with regulators and stakeholders, and exploring additional cutting edge technology.

ORP was created by Congress in 1998 to bring the needed attention, focus, and urgency to solving Hanford's tank waste cleanup. And focus is precisely what the office has done. Together with its tank farm contractor, CH2M Hill Hanford Group, Inc., and its waste treatment plant contractor, Bechtel National, Inc., ORP has made important strides since its creation.

Safety Issues Resolved

Solving critical tank safety issues led to recent closure of a congressionally mandated tanks watch list, which at one time had 60 tanks on it. Implementing the proper controls led to resolution of the safety issues involved.

Millions of Gallons of Tank Waste Pumped

While safety issues are currently under control, the tanks are still years beyond their design life. To protect the environment and prevent the opportunity for future leaks, liquid waste from the single-shell tanks is being pumped to newer, more environmentally sound double-shell tanks in a program known as interim stabilization. To date, more than 2.275 million gallons of tank waste have been moved, which represents more than half of the estimated retrievable liquid in Hanford's tanks. Pumping the tank waste will enhance the safety of the workers, the public and the environment.

Critical Infrastructure in Place

Building the waste treatment plant means first installing the critical infrastructure needed. ORP successfully completed this major facet of the project by building the roads to the waste treatment plant and installing the power and water to run the plant. This major task was completed under budget and ahead of schedule, demonstrating the Office's commitment to saving taxpayer dollars and doing more cleanup work for lower cost. Full-scale construction of the treatment plant will begin this fiscal year.

Finding Ways to Complete Cleanup Cheaper and Sooner

While all of the tank waste must be eventually treated, not all of the waste has to be treated by the same method. ORP wants to treat the most radioactive, highly hazardous tank waste first, while simultaneously looking at other technologies that might be used to treat tank waste that is less hazardous and more amenable to alternate treatment methods.

Working with Regulators and the Richland Operations Office

Key to ORP's success has been its collaborative, mutually beneficial relationship with regulators and the Department's Richland Operations Office.

Together, ORP, the Richland Operations Office, the Washington State Department of Ecology and the U.S. Environmental Protection Agency formed the Cleanup, Constraints, and Challenges Team (C3T), to examine roadblocks to Hanford Site cleanup and expeditious ways to remove them and drive cleanup forward. These goals were outlined in a joint Letter of Intent, which, with recommendations from the Department's Top-to-Bottom Review, culminated in the Hanford Performance Management Plan for the Accelerated Cleanup of the Hanford Site—a first in the DOE complex. Both the Office of River Protection and the Richland Operations office are working together to complete cleanup sooner and at a more reasonable cost.

For more information on the Office of River Protection, visit the Office's Web site at www.hanford.gov/orp.

Hanford Project Teams Continue to Work Hard***Hanford Completes Stabilization of Plutonium Solutions***

Fluor Hanford has completed stabilization and packaging of all 4,500 liters of plutonium-bearing solutions from high-risk liquid form to a more stable dry powder form, thus allowing for the material's safe long-term storage and ultimate disposal. The solutions were part of an inventory of plutonium-bearing materials stored inside Hanford's Plutonium Finishing Plant (PFP), which was a major workhorse in the production of weapons-grade plutonium during the Cold War.

Hanford is stabilizing five forms of plutonium-bearing materials—metals, alloys, solutions, oxides and residues. The PFP cleanup work represents a major risk reduction activity at the Hanford Site. Stabilization of PFP's entire materials inventory is scheduled to be complete by May 2004.

SPOTLIGHT ON HANFORD SITE

To stabilize the liquids, workers “precipitated” the plutonium out of the solution by adding a chemical compound, then heated the remaining material to convert the plutonium to the oxide (powder) form. The material is now in three nested, designed stainless steel containers, which are welded and suitable for long-term storage. Eventually the material will be shipped offsite for permanent disposal.

Hanford Detection Tubes to Aid in Homeland Defense

More than 800 chemical detection tubes were transferred recently from the Environmental Restoration Project at Hanford to the Department of Energy for redistribution to the U.S. Department of Justice. The detection equipment will be used to help train emergency preparedness personnel across the country in responding to possible terrorist attacks.

The Environmental Restoration Project, managed by Bechtel Hanford, once used the tubes in industrial hygiene activities. Each tube was manufactured to detect a specific chemical such as ammonia, benzene, carbon dioxide, formaldehyde or sulfuric acid. The tubes detected nearly 40 different chemicals, but are no longer in use at Hanford.

“The tubes would be disposed of as hazardous waste at considerable taxpayer expense,” said Doug DuVon, waste minimization and pollution prevention coordinator for Bechtel Hanford. “By donating the tubes, Bechtel Hanford is avoiding more than \$15,000 in hazardous waste disposal costs” while assisting in homeland security.

The ER Project team is working with DOE to identify other equipment that could be donated to the program.

For more information, contact Oscar M. Holgado at Oscar_M_Holgado@rl.gov.

Hanford Recognized for Excellence in Worker Safety

Hanford recently won six Department of Energy (DOE) Voluntary Protection Program (VPP) awards for excellence in worker safety programs. Hanford won six of 19 VPP stars awarded this year, the most of any site in the DOE Complex.

Dr. Harry Pettengill, Director of the DOE Office of Regulatory Liaison and Administrator of the DOE VPP said, “We understand how important this is. This achievement shows a tremendous commitment by all of the workers at the Richland Operations Office facilities. They have demonstrated leadership in safety performance and a strong safety culture.”

For more information, contact Manny Van Pelt on (509) 376-1590.

Hanford Programs Win Closing the Circle Award

The Hanford Site Community Outreach & P2/WMin Team recently won the 2002 White House Closing the Circle award for their Pollution Prevention Outreach and Education Program. Through cooperation among the community and businesses the Outreach program has successfully saved \$3,000,000 and touched the lives of 35,000 people this year.

Every year the White House recognizes federal employees for efforts resulting in a significant impact on the environment. DOE employees received a total of four awards, two of which went to the Hanford Site.

For more information, contact Oscar M. Holgado at Oscar_M_Holgado@rl.gov.



Beverly Cook, the U.S. DOE Assistant Secretary of Environment, Safety and Health, congratulates Keith Klein, manager of the Department of Energy Richland Operations (far right), for his support of the Voluntary Protection Program.

Diving Deep to Remove Waste in West Valley

The West Valley Demonstration Project (WVDP) in New York removed the last of its spent nuclear fuel assemblies from an onsite storage pool in 2001 and is now decontaminating its Fuel Receiving and Storage (FRS) facility.

Workers removed 149 canisters that previously contained the spent fuel assemblies. After the canisters were removed, they were radiologically surveyed, cleaned, then sprayed with encapsulation material, loaded into specially ordered boxes, and placed into storage for eventual shipment offsite.

Removal of the canisters from the pool cleared the way for divers to begin removing the canister storage racks and other

miscellaneous material from the FRS pool in February 2002.

Wearing dry suits and oxygen tanks, the divers unbolted sections of the storage racks and loaded them into large baskets under water. The divers used underwater torches and tools to reduce the size of equipment in the pool. Once filled, the baskets were lifted out of the pool by crane and placed in steel boxes for storage and eventual disposal. The diving work was safely and successfully completed in April 2002.

The pool will be drained slowly and the exposed walls will be scrubbed. The draining water will be processed through ion exchange to remove radioactive con-

aminants. When the pool is empty, a fixative will be applied to the walls to secure any residual contamination. This activity is scheduled for spring 2003.

For more information, contact Bryan Bower on (716) 942-4368.



A Commercial diver is washed with de-mineralized water before entering the WVDP pool.

Innovative Cleanup Technologies at the STAR Center

Until 1994, the Department of Energy's Pinellas Plant in Largo, Florida, produced nuclear weapons components. In 1995, the site was transferred to the Pinellas County Industrial Council for private business use. The Young-Rainey Science, Technology, and Research (STAR) Center, as the former plant is now called, houses more than 20 businesses that range from administrative to light manufacturing. However, DOE, through the Grand Junction Office (DOE-GJO), continues to manage cleanup of the site. DOE-GJO is implementing two aggressive technologies to address a three- to four-acre contaminated area.

The contaminants, particularly chlorinated organic solvents such as

trichloroethylene and dichloroethylene, pose long-term ground water contamination problems due to their limited solubility in ground water and significant potential for migration. The innovative technologies that will be used by DOE-GJO are in situ thermal remediation and an electro-thermo-dynamic stripping process.

In situ thermal remediation by steam injection uses boilers to generate steam, which is then pumped into injection wells that have been placed in the ground surrounding the contaminants. Used in conjunction with the electro-thermo-dynamic stripping process, the steam front converts the contaminants to a vapor allowing them to move more readily through the soil. The steam front continues to push

the contaminants toward a central network of extraction wells for removal and prevents movement of the contaminants outside the treatment zone.

The electro-thermo-dynamic stripping process technology removes contaminants from soil and ground water by passing an electrical current through the soil. The passage of current generates heat due to electrical resistance within the soil. Generation of heat throughout the soil in the remediation area increases the temperature of the soil to the boiling point of water. Moisture in the soil is transformed into steam that is captured by recovery wells for removal.

Field construction activities were initiated in May with the system scheduled to become operational in September.

For more information, contact David Ingle on (727) 541-8943.

Technical Assistance Team Kicks Off Program at Rocky Flats

Late this spring, the DOE's Office of Environmental Management's Office of Science and Technology kicked off its new Technical Assistance Team program at Rocky Flats. The program is part of a streamlining initiative to support DOE closure sites by providing assistance on technical issues.

EM brought together a team of nine recognized experts in nuclear facility decommissioning, including demolition, radiological contamination control, safety, and commercially applied technologies.

The team was tasked with providing guidance on the demolition of the structure and outer shell of Building 776/777. Demolition is one of the final activities, following the successful decommissioning of the interior. The team was onsite for three days to review the building history and structure, and tour the facility.

The team assembled and presented options to Rocky Flats that included a strategy that will likely be used, which calls for the dividing of the building into low contamination areas that could be

decontaminated for unrestricted release, and higher contaminated areas with low probability for unrestricted release. This would allow for waste minimization and decrease the time and cost of demolition.

"This is the first technical assistance that EM has provided for decommissioning since the Top-to-Bottom Review provided a new direction. As a model for future support, it was timely, efficient and very effective in providing just the right assistance to the contractor when they needed it," said Gary Schuetz, DOE Oversight of the Building 776/777 Closure Project.

For more information, contact Mariane Anderson at Mariane.Anderson@rf.doe.gov.

Innovations Bring Down the House at Rocky Flats

Rocky Flats engineers implemented innovative strategies to quickly and safely transform Building 886, a former nuclear criticality laboratory, into a pile of rubble late this spring.

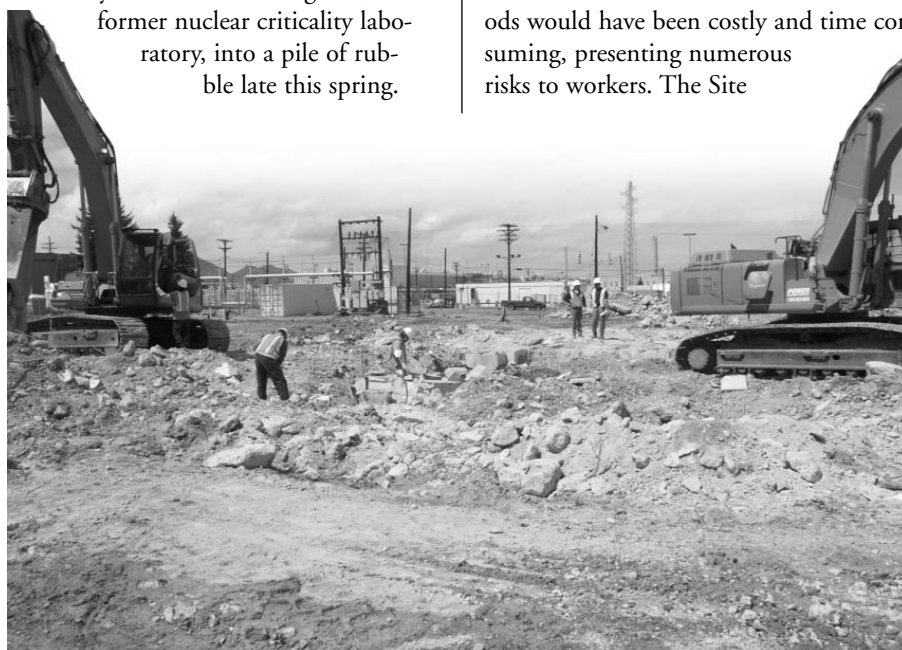
Tearing down the five-foot thick walls of the criticality experimentation lab using traditional mechanical demolition methods would have been costly and time consuming, presenting numerous risks to workers. The Site

instead opted to hire a demolitions company to employ explosives in a proprietary method they term "explosive harmonic delamination."

The delamination process involves drilling holes in the concrete, placing relatively small amounts of explosive materials in the holes, and setting off the explosives in a timed pattern to shake the concrete structure. The sequence of explosions causes intense vibrations that separate the cement matrix in the concrete from the gravel aggregate and rebar. The structure remains standing, but is substantially weakened, allowing accelerated removal by mechanical (excavator) means.

"The method was so successful, it is almost certain to be applied to other thick concrete structures on the Site in the future," said Steve Tower, the DOE project leader.

For more information, contact Mariane Anderson at Mariane.Anderson@rf.doe.gov.



Workers sift through rubble that once was a part of America's nuclear weapons production. Rocky Flats' Building 886 was demolished late this spring.

SSAB SPOTLIGHT

Fernald Citizens Advisory Board Leads Effort to Shape Fernald's Legacy

During the early 1990s, citizens living and working near the Fernald Environmental Management Project were struggling to understand the extent of the site's environmental contamination and the wide variety of laws and regulations governing cleanup of a former nuclear weapons facility.

"It was an overwhelming period for our stakeholders," recalls Johnny Reising, DOE Associate Director for Environmental Management. "There were multiple community groups wanting answers and action, but there was a tremendous amount of data to review and digest before any cleanup decisions could be made."

To establish a pulse-point for stakeholders' concerns, DOE along with the U.S. and Ohio's Environmental Protection Agency, developed the Fernald Citizens Task Force in 1993, an Environmental Management Site-Specific Advisory Board (EM SSAB) composed of representatives from neighboring communities, local governments, trade unions and universities. For the first few years, the Fernald Citizens Advisory Board (FCAB)—as the EM SSAB, Fernald, is now called—spent considerable time and energy researching and debating complex issues, such as the future use of the site, acceptable risk levels, cleanup criteria and long-term waste disposal options.

"Before we could become a legitimate partner in the decision process, we first had to establish ourselves as a leader within the community," said James Bierer, FCAB chair since 1998 and an original board member. "We also had to

develop relationships with the decision-makers. Although we may have disagreed on the approach at times, we all shared the same goal of cleaning up the Fernald site."

Today, the 14-member Board is leading a public effort to plan for Fernald's future when cleanup is complete. For the last three years, the FCAB has hosted a series of "Future of Fernald" public workshops to involve stakeholders in post-cleanup decisions, such as future land use, public access and records management. During the workshops, stakeholders expressed a strong interest in using restored portions of the 1,050-acre site for educational purposes.

"Stakeholders want to educate future generations about Fernald's rich history, including its role in the nuclear weapons complex during the Cold War and its transition to a leader in environmental remediation," said Bierer. Following the second workshop, the Board submitted a consensus community vision to DOE that calls for reburial of Native American remains and creation of an onsite multi-use facility that the community and site steward could share. This year, the Board is exploring potential funding options, designs and uses for the facility.

"The Fernald Citizens Advisory Board is an example of what individuals can accomplish when they work together," said DOE-Fernald Director Steve McCracken.

Over the last nine years, the FCAB has submitted more than 50 recommendations to DOE on issues ranging from risk management to setting cleanup priorities, and has participated in numerous national advisory board forums to



Since 1999, the Fernald CAB has sponsored four "Future of Fernald" public workshops to address post-cleanup issues, including public use and long-term stewardship.

address challenges facing the Department, including transportation, waste disposal and long-term stewardship.

"For each issue, the Board looks beyond Fernald's boundary and carefully weighs how its recommendations may impact other communities," said McCracken. "Through its leadership, Fernald has developed cleanup and restoration plans that reflect the community's desire to create a positive legacy for future generations."

For more information about the FCAB, visit the Board's Web site at www.fernaldcab.org or contact Gary Stegner on (513) 648-3153 or at gary.stegner@fernald.gov.

Fernald Completes Transfer of Nuclear Material to Expedite Cleanup

When Fernald ceased uranium production operations in 1989, approximately 31 million net pounds of uranium product were onsite. In the ensuing years, Fernald stored the nuclear inventory until it determined an appropriate disposition plan. On May 15, cleanup workers shipped the last truckload of nuclear product offsite, a critical step in achieving site closure by 2006.

Because of its complicated nature, the disposition process took years to plan and complete. After shutdown, DOE and Fluor Fernald worked with regulators and the public to develop site cleanup plans where stakeholders identified removal of all nuclear material as a priority.

In 1999, Fernald began shipments of reusable nuclear product to Portsmouth, where it will remain in interim storage. Over a three-year period, Fernald transferred 9.1 million pounds of depleted, normal and enriched uranium product to the DOE Portsmouth Gaseous Diffusion Plant in Piketon, Ohio. Fernald also sent uranium to other

DOE sites, the Department of Defense and businesses in the private sector.

"Removing the uranium product stockpile eliminates a radiological source from the site and significantly reduces landlord and surveillance costs associated with storing and managing the product," said DOE-Fernald site director Steve McCracken. "We can now redirect resources to our cleanup projects and con-

tinue to accelerate building demolition and soil excavation."

DOE and Fluor Fernald are on schedule to complete cleanup of the 1,050-acre Fernald site by the end of 2006.

For more information, contact Gary Stegner on (513) 648-3153, or at gary.stegner@fernald.gov.



Steve McCracken, DOE-Fernald site director, congratulates the DOE and Fluor Fernald workers who safely packaged and shipped 9.1 million net pounds of uranium from Fernald to the DOE Portsmouth Gaseous Diffusion Plant for interim storage.



The last shipment of uranium product destined for Portsmouth left the Fernald site on May 15, 2002.

Fernald Stakeholders Approve Future Use Plan

With cleanup on target for completion by the end of 2006, Fernald stakeholders have shifted their attention to critical decisions that will shape the site's legacy for future generations.

In March, stakeholders accepted DOE's proposed public use plan for the Fernald site following remediation. The plan allows limited public access for educa-

tional purposes, a fundamental component of the site's long-term stewardship plan. To showcase completed remediation areas and restoration projects, DOE and Fluor Fernald will construct a series of walking trails, overlooks and interpretive signs that provide information about the site's role during the Cold War as well as cultural and ecological points of interest. Visitors will be able to observe Native

American reburial areas and Fernald's Cold War Garden—a memorial to workers, local residents and others who made significant contributions to the site during its uranium production and cleanup missions.

Since the mid 1990s, DOE and Fluor Fernald have been actively engaged with local stakeholders to plan the future of Fernald, which has resulted in consensus-

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Students Help Nevada Get Its Message Across

The Environmental Management program faces numerous challenges in making highly technical topics interesting, informative, accurate and, above all, easy for the public to understand. Lack of familiarity with technical language and acronyms often hampers the public's ability to understand the program. Most communications experts recommend that technical information be written at a middle school to high school comprehension level.

To address communications challenges, the EM program at the Nevada Operations Office (NV) has established the Student Forum, a pilot program consisting of a small group of 11th and 12th graders who serve as a

sounding board for their communications products.

The student participants attend a competitive high school in Las Vegas that offers rigorous programs in business and finance, computer graphic design, computer science, law-related education, sys-



Students serving on the EM Student Forum test their communications products at an information fair.

tems technology support, information technology, and engineering technology. Using their skills in these areas, students

meet monthly to provide the NV EM Program with feedback on readability, layout, design and comprehension of EM materials such as CD-ROMs, videos, displays, pamphlets, and fact sheets.

Since the first meeting last fall the student team has been busy. In addition to reviewing EM products, the students took a tour of the Nevada Test Site to gain a better overall perspective of operations and attended a community outreach event to see how products are used to educate the public. Next, the students collaborated on a team project of their own: designing a children's display about environmental management. They also created a Web site with a message board, which has been helpful for draft projects, review of existing documents and information updates. At their monthly meetings, the students have reviewed draft communications products including brochures and newsletters and offered critiques of the content, layout and design.

The partnership benefits the Nevada Operations Office EM Program, the public and especially the students, who gain hands-on professional and environmental experience.

For more information, contact Heather Emmons on (702) 295-2928.

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based decisions on land use and public access issues.

In late 2002, DOE will issue a draft Comprehensive Stewardship Plan for public review. The Plan will identify monitoring and maintenance requirements for the Onsite Disposal Facility and ecologically restored areas, and will outline the roles and responsibilities of the site steward, the entity that will manage the site after closure. DOE has received significant public support to construct a multi-purpose educational

facility on the restored site, and the plan will also identify requirements for managing and maintaining such a facility, if approved.

Under the leadership of the Environmental Management Site-Specific Advisory Board at Fernald (Fernald Citizens Advisory Board), the public is currently evaluating potential funding options, community uses, space requirements and designs for such a facility, and will issue its recommendations to DOE later this year.

For more information, contact Gary Stegner on (513) 648-3153, or at gary.stegner@fernald.gov.



Community involvement has been integral to the consensus-based decisions that are being made on Fernald's final land use and public access to the site.

Peer Review Indicates Ground Water Project Viability

At the urging of the Environmental Management Site-Specific Advisory Board for Nevada Test Site (NTS) programs, the American Society of Mechanical Engineers recently completed an independent peer review of the Underground Test Area (UGTA) Project strategy being used to evaluate the extent of ground water contamination at NTS.

The peer review team consisted of experts in geology, hydrology, geochemistry, and engineering. The team spent approximately six months conducting interviews, researching documents, and preparing the report, which took into account the site's unique geology combined with varying depths of the ground water and historical testing activities. The report indicated that computer modeling—the current approach—is an appropriate approach to study and estimate the potential for contaminant migration in ground water on and off the NTS.

However, the team also made several recommendations for improvement, including expansion of the strategic objective, further evaluation of an earlier regional

flow model, careful delineation for the placement of future monitoring wells, and the potential for additional seismic surveys to enhance the current model.

“The peer review report indicates that the UGTA strategy is viable overall,” said Carl Gertz, Assistant Manager for Environmental Management. “The team offered some valuable recommendations—ones that will be considered and appropriately implemented as we make future plans for the project.”

The UGTA strategy uses a multi-phased approach that includes ground water sampling, contaminant characterization and computer modeling. Information gathered from this approach will provide the tools to develop an effective, long-term monitoring network to protect the

health and safety of nearby communities.

The U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office (NNSA/NV) agreed to submit its UGTA strategy for a peer review after the EM SSAB, Nevada, expressed concern over the strategy's viability.

For more information, visit the NNSA/NV Web site at www.nv.doe.gov or the EM SSAB, Nevada, Web site at www.ntscab.com.



To further inform stakeholders of its work on the peer review, the CAB conducted a series of public information meetings to discuss their recommendations on the ground water project's viability.

Waste Isolation Pilot Plant Celebrates Three-Year Anniversary and 1000 Shipments

Later this spring, employees, officials from Federal, state, and local governments, and other invited guests celebrated three safe and successful years of disposal operations at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico.

At about 4:00 a.m. on March 26, 1999, the first shipment of transuranic waste arrived from the Los Alamos National Laboratory (LANL), beginning disposal operations at the world's first geologic repository for transuranic waste. On July 13, 2002, the 1000th shipment of

transuranic waste arrived at the WIPP gate. Through July, WIPP had received shipments of waste from LANL, Idaho National Engineering and Environmental Laboratory, Rocky Flats Environmental Technology Site,

WIPP's Anniversary,
continued on page 15



Members of the community turned out en masse to celebrate three years of safe operations at WIPP.

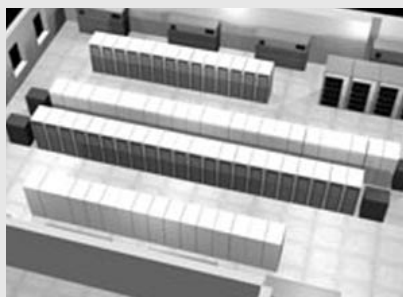
SITE SHORTS...SITE SHORTS...SITE SHORTS

New PNNL Supercomputer to Help with Waste Processing and Storage

The Department of Energy's Pacific Northwest National Laboratory ordered a \$24.5 million, 9.2-teraflop Hewlett-Packard Linux-based supercomputer that will allow researchers to apply computational science to answer fundamental questions such as how radioactive waste can be processed and stored and how proteins interact and behave in order to model a living cell. The supercomputer will be roughly 9,100 times faster than a current personal computer.

"I'm pleased that the Department of Energy now will have the world's most powerful Linux-based computer for our pivotal work in biological and environmental research," said Secretary of Energy Spencer Abraham. "This new computing power will advance scientific study in a host of areas and keep DOE and our national laboratories on the cutting edge of technology. But more than that, it will allow us to better fulfill our mission to the American people to provide the science needed to solve critical energy and national security problems."

For more information, contact Manny Van Pelt on (509) 376-1590.



An artist's rendering illustrates how the Super Computer will be set up at PNNL.

Savannah River Rolls on Toward Cleanup

Savannah River Site's Environmental Restoration program recently took another step toward cleaning up the legacy of the Cold War: the final closure of the old solvent tanks.

The tanks have been virtually emptied, leaving only residual amounts of liquid and sludge that cannot be readily removed. To prevent the emptied tanks from collapsing and spilling the contaminants, grout is inserted. The grout stabilizes the contaminants in a cement matrix. Remote-operated cameras allow work crews to inspect the tanks visually and make sure that they are grouted completely and properly.

These 22 underground steel tanks, ranging from 6,800 to 27,000 gallons in size, were formerly used to store spent liquids from the plutonium-uranium extraction process.

For more information, contact Bill Taylor on (803) 725-2889.

PUREX Shutdown at SRS

After nearly 50 years of operation, the process known as PUREX (Plutonium and Uranium Extraction) concluded at the end of March in the Savannah River Site's F Area.

Ceasing PUREX operations is the beginning of a multi-year effort to conclude as many F Area operations as possible and shift staffing to H Area to support upcoming missions there.

The ultimate goal is to finish work in F-Chemical Separation Facility (Canyon) and other F area facilities as quickly as

possible and use the money saved for other accelerated cleanup activities.

For more information, contact Bill Taylor on (803) 725-2889.

INEEL's Cleaner Slate

The first step in removing all radioactive liquid waste from the Tank Farm at the Idaho National Engineering and Environmental Laboratory (INEEL) was completed nearly 18 months ahead of schedule. The emptying of the pillar-and-panel vaulted tanks significantly reduces the volume of radioactive liquid waste stored over the Snake River Plain Aquifer.

Pillar-and-panel vaults are one of three types of concrete vaults that enclose stainless steel radioactive liquid waste storage tanks in the underground Tank Farm at INEEL. The tanks have been emptied to the lowest extent possible using existing equipment.

The radioactive liquid waste in the tanks was processed through an evaporator, concentrating the liquid waste volume. Sludge-type residuals that were not removed with the existing equipment still remain in the tanks. Tank cleaning technologies are being used to remove the majority of tank residuals as part of the first step to final tank closure. Closure of the tanks is planned for 2003, under terms of a plan approved by the State of Idaho.

For more information, contact Keith Lockie on (208) 526-0118.

INEEL Landfills Working as Expected

Soil caps placed over several industrial landfills at the Department of Energy's

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SITE SHORTS...SITE SHORTS...SITE SHORTS

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Idaho National Engineering and Environmental Laboratory (INEEL) are working as intended to protect people and the environment. INEEL recently completed a five-year review of the Central Facilities Area Landfills I, II and III remediation project and detailed its findings in a recent report that is available to the public.

The landfills have been monitored since 1997: equipment has monitored moisture in the landfills, gas in the soil and ground water beneath the site.

Nitrate concentrations will continue to be monitored annually and re-evaluated at the next five-year review. Yearly inspections of institutional controls and annual soil gas surveys will continue.

For more information, contact Stacey Francis on (208) 526-0075 or at syf@inel.gov

Innovative Decommissioning Techniques Reduce Risks at Rocky Flats

Rocky Flats has adopted a new procedure for the dismantling and disposition of gloveboxes across the site after successfully employing the procedure in Building 776/777. The Surface Contaminated Object (SCO) process was adapted, through the efforts of the National Energy Technology Laboratory's Decontamination and Decommissioning Technology Program, to measure surface contamination levels and identify an effective method to decontaminate surfaces that exceed SCO contamination limits. Using the SCO method greatly reduces the volume of transuranic waste,

produces significant cost savings and reduces risk to workers.

For more information, contact Mariane Anderson at Mariane.Anderson@rf.doe.gov.

Archaeology: Can You Dig It?

Cleanup workers at the Fernald site have had a rare opportunity to explore what life in southwest Ohio might have been like thousands of years ago when more than 170 Native American sites were discovered during soil excavation activities.

To involve local schools in the discoveries, Fernald, partnering with the Hamilton County Park District, created a unique curriculum for elementary school students called Archaeology: Can You Dig It? Through hands-on activities, students learn about the Native American people who inhabited the region during pre-historic and historic eras. The program features a video and a field trip to a nearby park so students can participate in a re-created archaeological dig.

"From the start, the community has shared our interest in preserving the sites for future generations," said Joe Schomaker, Fluor Fernald cultural resources coordinator. "So it seemed fitting to create an educational tool for teachers and students to learn about the people who once lived in their backyards."

Since 1996, more than 13,900 students from seven counties have participated in the program.

For more information, contact Ed Skintik on (513) 648-3151 or at ed.skintik@fernald.gov.

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Hanford Site, and Savannah River Site, and disposed of more than 22,000 waste drums or equivalent standard waste boxes. Operations have steadily grown from one truck shipment per week in 1999, to 28 shipments per week today, with a goal of reaching 30 shipments per week by September 2002.



The WIPP "birthday party" also recognized the support and dedicated service of Congressman Joe Skeen as he prepares to end his distinguished career in the U.S. House of Representatives.

Other milestones celebrated at the March event included: achieving more than 1 million safe employee hours at the WIPP facility, safely transporting waste to WIPP on more than 1.5 million safe transportation miles, and delivery of the 50th TRUPACT-II shipping container

For more information, contact the WIPP Information Center at 1-800-226-9477 or visit the WIPP Web site at www.wipp.carlsbad.nm.us.

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